ELEC 631 - Advanced Digital Signal Processing: Reinforcement Learning - Spring 2014

This course will explore reinforcement learning, an area of machine learning that designs software agents that take actions in an environment in order to maximize some kind of reward.

Reinforcement learning applications are numerous and include control theory, robotics, information theory, optimized sensing, and game theory.

Topics to be discussed include: Dynamic programming, Markov decision processes (MDP), partially observed MDP (POMDP), Multiarmed bandits, Exploration/exploitation tradeoff, Neural learning, Optimization approaches, Applications, etc.

Instructor:

Richard Baraniuk (http://www.dsp.rice.edu/~richb)
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Location: 1044 Duncan Hall

Time: Friday 2-4pm

This is a "reading course", meaning that students will read classic and recent papers and present to the rest of the class in a lively debate format. Students will also complete a major group project. The course is open to graduate students from any department with some background in statistics or machine learning.

Class grade will be based on:

- Class participation (15%)

- Paper presentations (30%)
- Paper summaries (prepared each week, 15%)
- Group project (40%)

Weekly Schedule (Tentative)

- 17 January 2014: Orientation
- Late April 2014: Group Project Presentations

Paper Schedule

- ELEC 631 Paper Schedule Spring 2014-ver4.pdf (https://dsp.rice.edu/sites/dsp.rice.edu/files/ELEC 631 Paper Schedule Spring 2014-ver4.pdf)

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